REMARKS:

Status Of Claims

Claims 1-18 were previously pending. Claims 1 and 6 have been amended and claims 19-24 have added. Thus, claims 1-24 are currently pending in the application with claims 1, 10, 19, 21, and 23 being independent.

Office Action

In the office action, the Examiner rejected claims 1, 4-6, and 8 under 35 U.S.C. 102(e) as being anticipated by Maeda et al., U.S. Patent No. 5,968,145. The Examiner also rejected claim 2 under 35 U.S.C. 103(a) as being unpatentable over Maeda in view of Kim, U.S. Patent No. 5,898,879. The Examiner also rejected claims 3, 7, and 9 under 35 U.S.C. 103(a) as being unpatentable over Maeda in view of Shay, U.S. Patent No. 5,900,886. The Examiner also rejected claims 10, 12-14, and 17 under 35 U.S.C. 103(a) as being unpatentable over Vax, U.S. Patent No. 5,467,274, in view of Maeda. The Examiner also rejected claim 11 under 35 U.S.C. 103(a) as being unpatentable over Vax in view of Maeda in further view of Kim. The Examiner also rejected claims 15-16 and 18 under 35 U.S.C. 103(a) as being unpatentable over Vax in view of Maeda in further view of Shay. Applicant respectfully submits that the currently pending claims distinguish the present invention from Maeda, Kim, Shay, Vax, and the other prior art references of record, taken alone or in combination with each other.

Specifically, claim 1 now recites "a DMA controller ... operable to ... reconfigure the second memory to prevent the CPU from writing data to the second memory while the DMA controller is accessing the second memory". Support for this amendment may be found, among other places, in the present application, on page 5, lines 20-30, which state:

> During a DMA read, the DMA controller 24 also controls the selectors 28, 30 and the data bus isolation gate 32 to prevent a conflict between the CPU 18 and the DMA controller 24. Particularly, the DMA controller 24 switches the selector 28 during a DMA read so that the address line of the second memory 22 is connected to the DMA controller 24 rather than the CPU 18. This permits the DMA controller 24 to select the address of the data that is to be read from the second memory 22 and transferred to the display 12.
>
> The DMA controller 24 also switches the selector 30 during a DMA read to force the second memory 22 to a read state. This prevents the CPU 18 from writing data to the second memory 22 while the DMA controller 24 is transferring data to the display 12.

With this configuration, the data in lines of the first and second memories need not be isolated, either from each other or from the CPU. For example, since the second memory is forced to a read state, any data the CPU may attempt to write, to either memory, is automatically ignored by the second memory when the DMA controller is reading data from the second memory. In other words, by forcing the second memory to the read state, construction and operation of the memory system of the present invention is simplified, more efficient, and more cost effective.

In contrast, Maeda prevents such interference by completely isolating his CPU bus 11 from his DMAC bus 13 with a bus connecting means 15, rather than ***reconfiguring the second memory*** to prevent the CPU from writing data to the second memory, emphasis

added, as claimed in claim 1. Furthermore, to reconnect the CPU bus with the DMAC bus, Maeda must go through a complicated arbitration scheme between the CPU, the bus connecting means, and the DMAC. Such construction and operation is more complicated inefficient, and costly to manufacture. As a result, Maeda does not disclose, suggest, or make obvious "a DMA controller ... operable to ... reconfigure the second memory to prevent the CPU from writing data to the second memory while the DMA controller is accessing the second memory", much less in combination with the other limitations of claim 1.

Claim 6 recites "a selector coupled between the CPU and a read/write line of the second memory, the selector being controlled by the DMA controller to force the second memory to a read state when the DMA controller is reading data from the second memory". Similarly, claim 14 recites "a selector coupled between the CPU and a read/write line of the second memory, the selector being controlled by the DMA controller to force the second memory to a read state when the DMA controller is reading data from the second memory". As discussed above, one of the methods employed by the present invention for preventing the CPU from writing to the second memory involves forcing the second memory to the read state, thereby allowing the second memory to receive but ignore data from the CPU. As required by claims 6 and 14, the selector, controlled by the DMA controller, forces the second memory to the read state.

In contrast, as discussed above, Maeda's DMA controller 5 communicates with his bus connecting means 15, which disconnects the CPU bus 11 from the DMA bus 13.

However, Maeda's bus connecting means 15 does not interact with the second memory at all. In fact, Maeda never discloses forcing "the second memory to a read state", as claimed in claims 6 and 14. As a result, Maeda simply does not disclose, suggest, or make obvious "a selector coupled between the CPU and a read/write line of the second memory, the selector being controlled by the DMA controller to force the second memory to a read state when the DMA controller is reading data from the second memory", as claimed in claims 6 and 14.

With regard to claim 10, there simply is no motivation or suggestion to combine the teachings of Maeda and Vax. Furthermore, Vax is non-analogous art with respect to both Maeda and the present invention. As a result, the present obviousness rejections cannot be sustained.

Obviousness, it will be appreciated, can be a problematic basis for rejection because the Examiner, in deciding that a feature is obvious, has benefit of the Applicant's disclosure as a blueprint and guide, whereas one with ordinary skill in the art would have no such guide, in which light even an exceedingly complex solution may seem easy or obvious. Furthermore, once an obviousness rejection has been made, the Applicant is in the exceedingly difficult position of having to prove a negative proposition (i.e., non-obviousness) in order to overcome the rejection. For these reasons, MPEP § 2142 places upon the Examiner the initial burden of establishing a *prima facie* case which requires, among other things, that there be identified some motivation or suggestion in the prior art or in the knowledge of one with ordinary skill to modify the reference or to combine

reference teachings. If the Examiner fails to establish the requisite *prima facie* case, the rejection is improper and will be overturned. *In re Rijckaert*, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). Only if the Examiner's burden is met does the burden shift to the applicant to provide evidence to refute the rejection.

Specifically, the Examiner must satisfy three criteria in order to establish the requisite *prima facie* case of obviousness: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine their teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or combination of references) must teach or suggest all the claim limitations. MPEP §706.02(j), citing *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991).

In meeting this initial burden, the Examiner "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention". *In re Fine*, 5 USPQ 2d 1596,1600 (Fed. Cir. 1988). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the applicant's disclosure. *In re Vaeck*, 1442 (Fed. Cir. 1991). Thus, "[m]easuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. *See e.g., W. L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 USPQ 303, 313 (Fed. Cir. 1983).

Furthermore, "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992); *see also In re Gordon*, 221 USPQ2d 1125, 1127 (Fed. Cir. 1984). Additionally, "if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP §2143.01.

In the present case, there is no suggestion or motivation to combine the teachings of Maeda and Vax. In contrast, the motivation cited by the Examiner is only Maeda's motivation for his own invention, rather than a motivation to combine his invention with some disparate system that has no need thereof. For example, Vax's DMA controller is integral to his CPU 15, as shown in figure 6A. Therefore, Vax's DMA controller does not interfere with the operation of the CPU and Vax has no need of Maeda's method of isolating the CPU and the DMA controller. Thus, there simply is no motivation or suggestion, found in the prior art to, to combine the teachings of Maeda and Vax. As a result, the present obviousness rejections cannot be sustained.

Furthermore, as discussed above, Vax is non-analogous art with respect to both Maeda and the present invention. The applicable test for determining whether a prior art reference is properly analogous with respect to an invention involves:

> (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the same field

of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Clay*, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992).

An invention cannot be considered to be within the field of endeavor of a prior art reference merely because both relate to the same industry. *Id.* 1060. However, "[a] reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to the inventor's attention in considering his problem". *Id.* 1061. Patent examination, however, is necessarily conducted by hindsight, with complete knowledge and benefit of the applicant's invention as a guide. *In re Oetiker*, 24 USPQ2d 1443, 1447 (Fed. Cir. 1992). For this reason, it is necessary to consider the "reality of the circumstances" in deciding in which fields a person of ordinary skill in the art would reasonably be expected to look for the solution to the problem facing the inventor. *Id.* 1447. Ultimately, a rejection based on non-analogous art cannot be sustained. *Id.* 1061.

The test set forth in *In re Clay* was tellingly applied, for example, in *Wang Laboratories, Inc. v. Toshiba Corp.*, which is cited by and discussed in MPEP §2141.01(a) in the context of determining analogousness in the electrical arts. *Wang Laboratories, Inc. v. Toshiba Corp.*, 26 USPQ2d 1767 (Fed. Cir. 1993). Wang Laboratories, Inc. (hereinafter referred to as "Wang"), as assignee, brought suit against a number of parties, including Toshiba Corp. and NEC Corp., for infringement of U.S. Patent Nos. 4,656,605 (the "'605 patent") and 4,727,513 (the "'513 patent"). *Id.* 1070. These patents relate to and claim

certain types of single in-line memory modules (SIMMs) (the "Wang SIMMs"). *Id.* 1770. At trial, a jury found that SIMMs manufactured by Toshiba Corp. and NEC Corp. infringed certain claims of the '605 and '513 patents. *Id.* 1770. In relevant part, Toshiba Corp. and NEC Corp. moved for JNOV, which was denied, and thereafter appealed. *Id.* 1770.

On appeal, Toshiba Corp. and NEC Corp. argued that the claims at issue were invalid for obviousness under 35 U.S.C. §103 in light of U.S. Patent No. 4,281,392 to Allen-Bradley Co. and its commercial counterpart the X9 SIMM (the "Allen-Bradley SIMM"). *Id.* 1772. Toshiba Corp. and NEC Corp. argued that the Allen-Bradley patent and the Allen-Bradley SIMM were analogous to the claimed subject matter and effective to render the relevant claims of the '605 and '513 patents invalid. *Id.* 1772.

The court held that an adequate jury instruction regarding analogous art had been provided at trial, and held that the jury's finding of non-analogous art was supported by substantial evidence. *Id.* 1773. Specifically, the court cited the criteria set forth in *In re Clay*, and noted that "[t]he Allen-Bradley art is not in the same field of endeavor as the claimed subject matter merely because it relates to memories ... [Allen-Bradley] involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories". *Id.* 1773. In finding substantial evidence to support the jury's finding, the court noted that the Wang SIMMs were pertinent to the field of personal computers, and were designed to provide compact computer memory with minimum size, low cost, easy reparability, and easy expandability. *Id.* 1773. Contrastingly, the Allen-Bradley SIMMs were developed for use in a controller of much

larger industrial machinery and could not be used in a personal computer. *Id.* 1773. Thus, while the Wang SIMMs were purposefully designed to be small, size was not a consideration for the Allen-Bradley SIMMs. *Id.* 1773. For these reasons, the court held, the Allen-Bradley prior art was non-analogous and not reasonably pertinent to the '605 and '513 patents. *Id.* 1773.

The test set forth in *In re Clay* was also tellingly applied, for example, in *In re Oetiker*, which is cited by and discussed in MPEP §2141.01(a) in the context of determining analogousness in the mechanical arts. *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992). In *In re Oeitker*, an improvement was claimed to a stepless, earless metal clamp, with the improvement being a preassembly hook which serves to both maintain a preassembly condition of the clamp and to disengage automatically when the clamp is tightened. *Id.* 1445. All claims were rejected over the combination of U.S. Patent No. 4,492,004 to Oetiker, which disclosed the unimproved clamp, and U.S. Patent No. 3,426,400 to Lauro, which disclosed a plastic hook and eye fastener for use in garments. *Id.* 1445.

Oetiker argued during prosecution that Lauro's garment hook was non-analogous art in that a person of ordinary skill seeking to solve the problem facing Oetiker would not look to the garment art for the solution. *Id.* 1445. The Examiner argued that because garments commonly use hooks for securement, a person faced with the problem of unreliable maintenance of the pre-assembly configuration of an assembly line metal hose clamp would look to the garment industry art. *Id.* 1445. On Appeal, the Board held that

Lauro was analogous art because both Lauro's and the Oetiker's inventions relate to "a hooking problem". *Id.* 1445.

The court, however, disagreed, stating that it had not been shown that a person of ordinary skill seeking to solve the problem facing Oetiker would reasonably be expected or motivated to look to fasteners for garments. Furthermore:

> The combination of elements from non-analogous sources, in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness. There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge cannot come from the applicant's invention itself. *Id.* 1446.

In the present case, according to the Examiner it would have been obvious to one of ordinary skill in the art to combine Maeda's DMA controller with Vax's GPS receiver.

Applying the criteria of *In re Clay* as interpreted in *Wang Laboratories, Inc.* and *In re Oetiker*, Vax is not in the same field of endeavor as either Maeda or the present invention merely because both broadly relate to memory systems. Furthermore, Vax is not in the same field of endeavor as the present invention merely because both involve GPS technology. Just as all memories were not the same in *Wang Laboratories, Inc.*, nor all hooking problems the same in *In re Oetiker*, all memory systems are not the same in the present case. Vax's "METHOD OF DEBREIFING MULTI AIRCRAFT OPERATIONS" is non-analogous art with regard to Maeda and/or the present invention, and they are not

made analogous merely because they involve memory. One with ordinary skill in the art of aircraft operations would not reasonably be expected to look to Maeda's memory system, especially to solve a problem that does not exist, as discussed above. Thus, the Applicant strongly believes that Vax does not meet the criteria set forth in *In re Clay* and is therefore non-analogous art with regard to the present invention. As a result, the present obviousness rejections cannot be sustained.

Claims 19-24 have been added to further distinguish the present invention over the prior art. The remaining claims all depend directly or indirectly from independent claims 1 or 10, and are therefore also allowable.

Any additional fee which is due in connection with this amendment should be applied against our Deposit Account No. 501-791. In view of the foregoing, a Notice of Allowance appears to be in order and such is courteously solicited.

Respectfully submitted,

By: _____

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